

WHAT IS CLAIMED IS:

1. A method to increase the processivity of a RNA-dependent
DNA polymerase comprising, an addition of an effective amount of a
5 general RNA binding protein to a nucleic acid polymerization mixture
comprising a polymerase, whereby said addition of RNA binding protein
enables an increase of the processivity of said polymerase.
2. The method of claim 1, wherein said polymerase is a reverse
10 transcriptase.
3. The method of claim 2, wherein said reverse transcriptase is
MMLV RT or AMV RT.
- 15 4. The method of claim 1, 2, or 3, wherein said RNA binding
protein is a retroviral nucleocapsid protein.
5. The method of claim 4, wherein said general RNA binding
protein is NCp7.
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6. An improved method of cDNA synthesis, the improvement
consisting in an addition of a RNA binding protein to the nucleic acid
polymerization mixture comprising the reverse transcriptase, whereby said
addition of general RNA binding protein enables an increase of the
25 processivity of said reverse transcriptase, thereby enabling a significant
increase in the production of full length cDNAs.

7. The improved method of claim 6, wherein said reverse transcriptase is MMLV RT or AMV RT.

8. The improved method of claim 6, or 7, wherein said RNA binding protein is a retroviral nucleocapsid protein.

9. The method of claim 8, wherein said general RNA binding protein is Ncp7.

10. Use of a general RNA binding protein as an additive to improve the processivity of a nucleic acid-dependent polymerase, comprising an incubation of said polymerase in the presence of a processivity-improving amount of said RNA binding protein.

11. Use of a general RNA binding protein as an additive to improve the proportion of full length cDNA clones converting RNA to cDNA utilizing a reverse transcriptase, comprising an incubation of said reverse transcriptase in the presence of an effective amount of said general RNA binding protein.

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12. A method to identify agents which can increase the processivity of a DNA- or RNA-dependent polymerase, comprising:

a) reverse transcribing a RNA having a polymerase processivity inhibiting structure in the presence of a candidate processivity increasing agent; and

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b) comparing the length of the polymerized products; wherein a potential processivity increasing agent is identified when the length of

polymerized products is measurably higher in the presence of the candidate agent than in the absence thereof.

13. The method of claim 12, wherein said RNA is
5 flWT1(GNRA)2.

14. The method of claim 12 or 13, wherein said polymerase is MMTV RT or AMV RT.

10 15. A method of selecting an agent which is capable of increasing the processivity of a DNA- or RNA-dependent polymerase, comprising:
a) an incubation of a candidate polymerase processivity increasing agent together with a polymerization mixture; and
b) comparing the length of the polymerized products; wherein a
15 potential processivity increasing agent is selected when the length of polymerized products is measurably higher in the presence of the candidate agent than in the absence thereof.

16. The method of claim 15, wherein said RNA is
20 flWT1(GNRA)2.

17. The method of claim 15 or 16, wherein said polymerase is MMTV RT or AMV RT.

18. A polymerization processivity-increasing composition,
25 comprising a template nucleic acid, a polymerase and a general RNA binding protein, together with a suitable polymerization buffer.

19. The composition of claim 18, wherein said polymerase is a reverse transcriptase.

20. The composition of claim 18 or 19, wherein said RNA binding protein is the chaperone protein Ncp7.

21. A method to increase the processivity of RNA-dependent RNA polymerase comprising an addition of an effective amount of general RNA binding protein to a nucleic acid polymerization mixture comprising said RNA-dependent RNA polymerase, whereby said addition of general RNA binding protein enables an increase of the processivity of said polymerase.

22. A method to increase the processivity of a DNA-dependent DNA polymerase or DNA-dependent RNA polymerase comprising an addition of an effective amount of general DNA binding protein to a nucleic acid polymerization mixture comprising one of said polymerase, whereby said addition of a general DNA binding protein enables an increase of the processivity of one of said polymerase.

23. The method of claim 22, wherein said polymerase is selected from T7 DNA polymerase and *E. coli*. DNA polymerase.

24. The method of claims 22 or 23, wherein said DNA binding protein is selected from the group consisting of T4gp32, SSB, and rec A.

25. An improved method of cDNA synthesis, the improvement consisting in an addition of a DNA binding protein to the nucleic acid

polymerization mixture comprising the DNA polymerase, whereby said addition of general DNA binding protein enables an increase of the processivity of said DNA polymerase during second strand synthesis, thereby enabling a significant increase in the production of full length cDNAs.

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26. The improved method of claim 25, wherein said DNA polymerase is T7 DNA polymerase.

27. The improved method of claim 25 or 26, wherein said DNA
10 binding protein is a single-strand DNA binding protein.

28. The method of claim 27, wherein said single-strand DNA binding protein is one of T4gp32, SSB, and rec A.

15 29. Use of a general DNA binding protein as an additive to improve the processivity of a nucleic acid-dependent polymerase, comprising an incubation of said polymerase in the presence of a processivity-improving amount of said general DNA binding protein.

20 30. Use of a general nucleic acid binding protein as an additive to improve the proportion of full length cDNA clones converting RNA to cDNA utilizing a reverse transcriptase, comprising an incubation of said reverse transcriptase in the presence of an effective amount of said general nucleic acid binding protein.

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31. A method to increase the processivity of RNA-dependent DNA polymerase comprising an addition of an effective amount of general DNA binding protein to a nucleic acid polymerization mixture comprising a

polymerase, whereby said addition of general DNA binding protein enables an increase of the processivity of said polymerase.